

deployment analysis specified in this Part.¹²⁸⁸ To the extent that a state commission does not complete its proceedings in this nine month period,¹²⁸⁹ aggrieved parties may file a petition with this Commission demonstrating a state's failure to act pursuant to the procedures we outline today.¹²⁹⁰ We expect that states will require an appropriate period for competitive LECs to transition from any unbundled transport that the state finds should no longer be unbundled.

418. After completion of their initial reviews, we expect state commissions to conduct further granular reviews, pursuant to the procedures the state commissions adopt, to identify additional routes that satisfy the triggers. Such proceedings shall be completed within six months of the filing of a petition or other pleading submitted in accordance with the prescribed state commission procedures.¹²⁹¹

D. Local Circuit Switching

1. Summary

419. Pursuant to the approach set forth in the *Triennial Review NPRM*,¹²⁹² the Commission adopts in this Order a more granular analysis for access to unbundled incumbent LEC local circuit switching. Specifically, based on the evidence in the record, we make the following determinations:

- *Local Circuit Switches Serving DS1 Capacity and Higher Enterprise Customers.* Based on evidence of competing carriers' widespread switch deployment to provide DS1 and above capacity service, we find on a national level that requesting carriers are not impaired without access to unbundled local circuit switching when serving DS1 enterprise customers. The states may rebut this finding by petitioning this Commission based on a granular

¹²⁸⁸ See *supra* para. 410.

¹²⁸⁹ By "complete," we mean that a state commission, upon receiving sufficient evidence, has an affirmative obligation to review the relevant evidence associated with any route submitted by an interested party, and to apply the trigger and any other analysis specified in this Part to such evidence.

¹²⁹⁰ As discussed above, if a state fails to act, we set forth procedures for the Commission to step into the role of the state. See *supra* Part V.E (discussing the role of the states).

¹²⁹¹ Subsequent to the initial review, states have the flexibility to adopt reasonable and timely procedures for the periodic collection and evaluation of evidence indicating the satisfaction of the transport triggers on additional routes to remove unbundling obligations. For example, a state may decide to include self-reporting information regarding alternative transport deployment in an annual or semi-annual report, either as an independent obligation or as part of the competitive carriers' periodic filing obligations. Alternatively, a state may decide to accept evidence of alternative deployment through petitions filed during prescribed filing windows or through rulemaking proceedings. Regardless of the procedures adopted, however, states that conduct further reviews must complete their evaluation of the evidence and reach a determination within six months of the filing of a petition or other pleading filed pursuant to the state procedures.

¹²⁹² *Triennial Review NPRM*, 16 FCC Rcd at 22806, para. 55.

review of specifically enumerated operational and economic criteria regarding facilities-based entry in specific markets.

- *Local Circuit Switches Serving Mass Market Customers.* We find on a national level that requesting carriers are impaired without access to unbundled local circuit switching when serving mass market customers. This finding is subject to a more granular review by the states pursuant to specifically enumerated triggers and other operational and economic criteria regarding facilities-based entry in specific geographic markets.¹²⁹³

420. We organize our analysis of local circuit switching based on the customer market served and the corresponding loop capacity levels used to serve each customer market. These categories are reliable indicators of the ability of a requesting carrier to utilize self-deployed switches. Our analysis focuses on, among other things, the different processes for transferring loops from incumbent LEC switches to competing carriers' switches to serve enterprise customers and mass market customers.¹²⁹⁴

421. In conducting our impairment analyses, we consider marketplace evidence of competitive LEC deployment of switches to provide competing local services to enterprise or mass market customers. Our impairment analysis with respect to DS1 enterprise customers (*i.e.*, customers that are or could be served by competitors using DS1 capacity and above facilities) recognizes the significant existing deployment of competitive LEC switches to serve such customers.¹²⁹⁵ The evidence in our record establishes that, in most areas, competitive LECs can overcome barriers to serving enterprise customers economically using their own switching facilities in combination with unbundled loops (or loop facilities). The facilities used to provide DS1 capacity or above services to enterprise customers typically are not pre-wired to incumbent LEC switches, allowing competing carriers to avoid the costs and service disruptions associated

¹²⁹³ *USTA*, 290 F.3d at 422. By establishing an overarching national framework while at the same time developing precisely the type of granularity test called for by the D.C. Circuit in *USTA*, our switching approach allows for the Commission to take advantage of, and build on, the wealth of knowledge and expertise within a national regime for local telephone competition consistent with the federal-state partnership envisioned by the Congress in the Act.

¹²⁹⁴ See *infra* Parts VI.D.5-6. As discussed below, we refer to this process of transferring, or cutting over, the loop as a "hot cut." Specifically, a hot cut refers to a process requiring incumbent LEC technicians to disconnect manually the customer's loop, which was hardwired to the incumbent LEC switch, and physically re-wire it to the competitive LEC switch, while simultaneously reassigning (*i.e.*, porting) the customer's original telephone number from the incumbent LEC switch to the competitive LEC switch. See generally Letter from Ron Gavillet, BiznessOnline.Com, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147 at 7 (filed Feb. 14, 2003) (BiznessOnline.Com Feb. 14, 2003 *Ex Parte* Letter).

¹²⁹⁵ Specifically, the record reflects that competing carriers have deployed as much as 1,300 local circuit switches and are primarily utilizing these switches to serve enterprise customers. AT&T Comments at 208-09; BOC UNE Fact Report 2002 at II-1; see also Letter from Michael A. Peterson, Executive Vice President – Chief Operating Officer and Chief Financial Officer, ATX, to Hon. Kevin Martin, Commissioner, FCC, CC Docket No. 01-338 at 1-2, 4 (filed Jan. 22, 2003) (ATX Jan. 22, 2003 *Ex Parte* Letter) (stating that "ATX has learned (as have most other CLECs that ATX is familiar with) that local switching facilities can be used to compete for larger customers"). ATX states that, to its knowledge, "virtually all CLEC switches are today focused on serving DS1 customers." *Id.* at 3.

with “hot cuts” – the manual process by which customer lines are migrated to competitor switches. Enterprise customers also generally offer increased revenue opportunities and are more willing to enter long-term contracts, allowing competitive LECs a greater ability to recover the nonrecurring costs associated with providing service using their own switches. Accordingly, we make a national finding that competitors are not impaired without unbundled access to incumbent LEC local circuit switching when serving DS1 enterprise customers.¹²⁹⁶ We recognize, however, that special circumstances may create impairment without access to unbundled local circuit switching to serve enterprise customers in particular markets. We thus allow states 90 days to petition the Commission to rebut the national finding in individual markets based on specific operational evidence regarding loop, collocation, and transport provisioning and specific economic evidence including the actual deployment of competitive switches and competitors’ costs in serving enterprise customers.¹²⁹⁷

422. In contrast, the record indicates that there has been only minimal deployment of competitive LEC-owned switches to serve mass market customers. The characteristics of the mass market give rise to significant barriers to competitive LECs’ use of self-provisioned switching to serve mass market customers. Inherent difficulties arise from the incumbent LEC hot cut process for transferring DS0 loops, typically used to serve mass market customers, to competing carriers’ switches. These hurdles include increased costs due to non-recurring charges and high customer churn rates, service disruptions, and incumbent LECs’ inability to handle a sufficient volume of hot cuts. Accordingly, based on those barriers, we make a national finding that competitive carriers providing service to mass market customers are impaired without unbundled access to local circuit switching.

423. While our analysis could end with this conclusion, we nevertheless put in place concrete steps to mitigate these causes of impairment. Specifically, we ask the state commissions, within nine months of the effective date of this Order, to approve and implement a batch cut migration process – a seamless, low-cost process for transferring large volumes of mass market customers – or to issue detailed findings that a batch cut process is unnecessary in a particular market because incumbent LEC hot cut processes do not give rise to impairment in that market. We believe that the institution of such processes could significantly reduce or eliminate the causes of impairment we identify, thereby enabling significantly greater facilities-based competition in mass market switching.

424. While the record establishes that, on a national level, requesting carriers are impaired without access to unbundled local circuit switching when serving mass market customers, we institute a more granular market-by-market analysis of impairment on a going forward basis. Specifically, we provide enumerated impairment triggers and criteria for the states

¹²⁹⁶ We define “DS1 enterprise customers” for our impairment analysis as customers for which it is economically feasible for a competing carrier to provide voice service with its own switch using a DS1 or above loop. We find that this includes all customers that are served by the competing carrier using a DS1 or above loop. After the state commission conducts a “multiline DS0 cut-off” inquiry, it includes customers who could be served by the competing carrier using a DS1 or above loop. *See infra* para. 497.

¹²⁹⁷ Most state commenters in this proceeding requested such a role. *See, e.g.*, NARUC Reply at 1-6.

to apply in individual markets. In conducting such an analysis, the states shall apply specific triggers to evaluate impairment in the specific market and, if the triggers are not satisfied, examine evidence of the potential for switch self-provisioning that takes into account current switch deployment, revenues, costs, processes, network architecture, and other factors in the market under consideration.¹²⁹⁸ If, after applying the triggers and examining evidence of switch deployment and other factors, a state commission has made a finding of impairment in any particular market, it must consider whether this impairment could be addressed by a narrower rule making unbundled switching temporarily available for a minimum of 90 days for customer acquisition purposes, rather than making unbundled switching available for an indefinite period of time.¹²⁹⁹ Finally, we ask the state commissions to conduct periodic reviews of impairment for unbundled local circuit switching.

425. We have asked the state commissions to take on these roles, because, as explained below, they require analysis of geographic and market specific factors.¹³⁰⁰ For example, hot cut processes, as well as recurring and non-recurring charges for critical UNE inputs such as collocation, loops, and transport, often vary substantially between states.¹³⁰¹ Within a state UNE

¹²⁹⁸ As discussed below, a state must also examine factors including incumbent LEC performance in fulfilling unbundling, collocation, and other statutory obligations, difficulties in performing customer migrations between competitive LECs, difficulties in performing collocation cross-connects between competing carriers, and the significant cost disadvantages competitive carriers face in obtaining access to the loop and backhauling the circuit to their own switches. *See infra* paras. 456, 477-478.

¹²⁹⁹ We refer to this as “rolling use” because a competitive LEC gets access to unbundled local circuit switching for each customer acquisition for some defined period of time, and, at the end of this period, it must upgrade that customer to its own facilities.

¹³⁰⁰ Chairman Powell maintains that our switching analysis is flawed because, he claims, the economic criteria we set forth might be applied by the states in “divergent and subjective ways.” *Chairman Powell Statement* at 8; *see also id.* at 8 n.20 (citing the “subjective, multi-factor impairment [switching] analysis”). This criticism is flatly inconsistent with the high-capacity loop and transport sections, which Chairman Powell proposed and the Commission unanimously approved. Just as in those sections, states must first employ triggers that examine actual deployment; only if the triggers are not met must the states apply criteria to assess whether entry is uneconomic. The criteria we provide for switching are no more “subjective” or susceptible to “divergent” application than are the criteria we provide for high-cap loops and transport. With respect to loop facilities, for example, the state must examine a range of factors to determine whether “competitive LECs could economically deploy loop transmission facilities at that location at the relevant capacity level.” *See supra* para. 335. These factors include “evidence of alternative loop deployment at that location; local engineering costs of building and utilizing transmission facilities; the cost of underground or aerial laying of fiber or copper; the cost of equipment needed for transmission; installation and other necessary costs involved in setting service; local topography such as hills and rivers; availability of reasonable access to rights-of-way; building access restrictions/costs; [and] availability of similar quality/reliability alternative transmission technologies at that particular location.” *Id.*; *see also id.* at para 410 (listing similar criteria for transport). The Commission provides no guidance on how these various factors are to be assessed and weighed. In contrast, we provide considerable guidance on how to assess and weigh the factors for switching. For example, we make clear that evidence of enterprise switch deployment must be given “substantial weight” and the existence of a single competitively deployed mass market switch must be given “particularly substantial weight.” *Id.* at para. 517.

¹³⁰¹ According to one source, recurring loop rates can vary from \$2.59 (Illinois) to \$66.31 (Nevada), with a national average of \$12.98. Billy Jack Gregg, *A Survey of Unbundled Network Element Prices in the United States* (Updated (continued....))

loop rates can vary tremendously among zones.¹³⁰² Revenue potential also varies dramatically, as retail rates can vary between states, by the type of customer, and within the state.¹³⁰³ State commissions, which have traditionally exercised jurisdiction over intrastate telecommunications, have significantly closer proximity and more intimate knowledge of this information than does this Commission. They have greater knowledge, for instance, of how their intrastate retail rates are set, including where the implicit subsidies lie.¹³⁰⁴ They also have experience in making the kind of market-specific determinations we seek, from conducting interconnection arbitrations, making intrastate universal service decisions, and retail ratemaking.¹³⁰⁵ Accordingly, we believe that by setting specifically enumerated national triggers and criteria for impairment, which we explain below, to be applied by the state commissions, we can best provide the kind of granular impairment analysis called for by the statute.¹³⁰⁶

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Jan. 1, 2003), <<http://www.nrri.ohio-state.edu/documents/uneprices103.pdf>> and <http://www.nrri.ohio-state.edu/documents/unepricesmatrix103_001.pdf>.

¹³⁰² Many states have defined at least three geographic zones for the pricing of unbundled loops pursuant to section 252(d)(1) of the Act. 47 C.F.R. § 51.507(f) (“State commissions shall establish different rates for elements in at least three defined geographic areas within the state to reflect geographic cost differences.”).

¹³⁰³ For a sample of 95 urban areas, residential rates for flat-rate service ranged from \$14.68 (Phillipsburg, New Jersey) to \$30.87 (West Memphis, Arkansas), including surcharges and taxes. Rates also sometimes vary substantially within a state, such as in California, where the residential rate is \$16.39 in Salinas and \$25.18 in Long Beach. *FCC Reference Book of Rates, Price Indices, and Household Expenditures for Telephone Service*, July 2002 (*FCC Reference Book*), at Table 1.3. According to data in a separate report, rural rates can be higher (Georgia), lower (Connecticut), or the same (Massachusetts) as urban rates. TELECOMMUNICATIONS: FEDERAL AND STATE UNIVERSAL SERVICE PROGRAMS AND CHALLENGES TO FUNDING, U.S. General Accounting Office Report, GAO-02-187, Feb. 2002 (GAO Report on Universal Service), at Appendix IV. The report notes that states used different methods of setting rates, including cost-based prices (such that rural rates are higher), value-of-service pricing (such that rural rates tend to be lower), and geographic rate averaging (such that rates are constant). A nationwide examination of rates showed that there is no consistent relationship between residential rates and the cost of providing service. *Id.* at 14-15. Business customers generally pay higher rates than residential customers. Based on the survey of 95 urban areas, on average business rates are double residential rates, at \$44.80 for a business purchasing a single line versus \$21.84 for a residential line. *FCC Reference Book*, at Tables 1.1 and 1.8; GAO Report on Universal Service at 16 (“For every type of place, average single-line business rates are approximately twice as high as residential rates.”).

¹³⁰⁴ The existence of such subsidies and their impact on revenue opportunities is taken into account in our impairment analysis. See *supra* Part V.B.3.

¹³⁰⁵ See *infra* para. 496.

¹³⁰⁶ See *USTA*, 290 F.3d at 422 (directing the Commission to approach the section 251(d)(2) impairment analysis by considering “market-specific variations in competitive impairment.”). The BOCs and Chairman Powell have previously advocated giving the states precisely the kind of role we give the states in this item. Chairman Powell previously argued that this Commission should consider whether “regulators with closer proximity and more intimate knowledge of the availability of non-incumbent elements (e.g., state commissioners) should take a leading role in that [impairment] analysis.” *Statement of Commissioner Michael K. Powell, Implementation of the Local Competition Provisions of the Telecommunications Act of 1996*, CC Docket No. 96-98, 14 FCC Rcd 8694, 8721 (1999); see also, e.g., *id.* (“I am somewhat skeptical that the Commission can give meaningful effect to the requirement that we assess the availability of non-incumbent elements and related geographic variation for all areas (continued....)”).

426. This Commission will provide guidance to and exercise oversight of state commissions as they make these determinations. A party aggrieved by a state commission determination may seek a declaratory ruling from this Commission, and state commissions or other parties may at any time seek a declaratory ruling where necessary to remove uncertainty or eliminate a controversy.¹³⁰⁷ In addition, as the Commission articulated in the Local Competition Report and Order, an aggrieved party can always file a section 208 complaint with this Commission, alleging that the incumbent LEC or requesting carrier has failed to comply with the requirements of sections 251 and 252.¹³⁰⁸

427. At the same time, we anticipate, and several parties have explicitly advocated, that state commission unbundling decisions will be incorporated into the arbitration agreement process; indeed, at least one party has argued that a failure to incorporate the unbundling analysis

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and markets in the nation. Although I think the Commission could potentially conduct such a sweeping assessment, at least in theory, that project would likely necessitate an exhaustive, fact-intensive inquiry to which I fear the Commission would devote inadequate time and resources.”); *Statement of Commissioner Michael K. Powell, Dissenting in Part, Implementation of the Local Competition Provisions in the Telecommunications Act of 1996*, Third Report and Order and Fourth Further Notice of Proposed Rulemaking, 16 FCC Rcd 1732, 1733 n.6 (1999) (“A preferable option would have been to provide some time-limited ability for state commissions that perceive their markets are different to remove elements from the national list . . .”). For their part, the BOCs have consistently advocated for a significant state role in analyzing impairment. In the UNE Remand proceeding, for example, U S WEST argued that “[a]s Commissioner Powell has observed, state commissions have ‘closer proximity and more intimate knowledge’ of these facts. They would thus be ideally positioned to track such localized data on a current basis and to determine where the Commission’s unbundling presumptions would or would not apply.” U S WEST Comments at 30, CC Docket No. 96-98 (May 26, 1999) (citation omitted). BellSouth asserted that “[i]t is imperative that the state commissions play an important part in defining network elements due to their knowledge of local market conditions and their extensive experience in making factual determinations about local competition issues.” Letter from Robert T. Blau, Vice President – Executive and Federal Regulatory Affairs, BellSouth to Magalie Roman Salas, Secretary, FCC, CC Docket No. 96-98 (filed Feb. 11, 1999). GTE’s general counsel, who is now general counsel for Verizon, stated that “because actual facilities deployment by CLECs varies by geographic area, type of customer and type of service, the Commission cannot adopt a single, ‘one size fits all’ national list of UNEs merely for the sake of simplicity and uniformity.” Letter from William P. Barr, General Counsel, GTE Service Corporation, to Lawrence E. Strickling, Chief, Common Carrier Bureau, FCC, CC Docket No. 96-98 at 4 (filed March 1, 1999) (GTE Mar. 1, 1999 *Ex Parte* Letter). According to Verizon’s general counsel, “[t]he rule must be tailored to accommodate variations in the facilities-based competition that already exists and that is currently possible through the use of available substitutes.” *Id.* He also stated that “the Act clearly establishes a mechanism – individualized arbitrations conducted by state commissions – to take such variations into account. Any departure by the Commission from the localized determination of what elements are essential for unbundling, which the Act’s arbitration process enables, must be strictly justified and narrowly tailored.” *Id.* SBC agreed and argued that “[s]tates may administer the national standards set by the Commission (e.g., by applying the standards to specific geographic areas or making specific factual determinations)” SBC Comments at 18, CC Docket No. 96-98 (filed May 26, 1999).

¹³⁰⁷ *Local Competition Order*, 11 FCC Rcd at 15563-64, para. 125.

¹³⁰⁸ *Id.* at 15564, paras. 127-28. Indeed, we do not believe we could prohibit such petitions and complaints, which are statutory, from being filed at the Commission.

into the arbitration process would be legally suspect.¹³⁰⁹ Specifically, the Act provides that state commissions will resolve issues related to unbundling in conducting arbitrations between carriers and approving interconnection agreements and statements of generally available terms pursuant to the Act and regulations promulgated by this Commission. Under section 252, parties wishing to appeal such determinations may do so in federal district court.¹³¹⁰ Accordingly, there is no exclusive right of appeal to this Commission.¹³¹¹

428. Incumbent LECs argue that the Commission may not “punt” unbundling decisions to the states.¹³¹² They argue that, in those instances where impairment analysis requires a more granular approach, the Commission should establish “objective, carefully defined criteria for determining where unbundling is (and is not) appropriate.”¹³¹³ We agree. As explained in detail below, we do establish ‘objective, carefully defined criteria for determining where unbundling is (and is not) appropriate.’¹³¹⁴ These criteria – including our triggers – ensure that states undertake the tasks we give them consistently with the statute’s substantive standards and stay within the parameters of federally established guidelines.¹³¹⁵ Accordingly, we are not ‘punting’ unbundling decisions to the states.

¹³⁰⁹ See GTE Mar. 1, 1999 *Ex Parte* Letter at 4 (“It is simply not rational to attempt to determine what is ‘needed,’ or what will ‘impair’ a CLEC’s ability to compete, on a single, nationwide basis and without taking into account the particular variations associated with different geographic areas and types of service. And the Act clearly establishes a mechanism – individualized arbitrations conducted by state commissions – to take such variations into account. Any departure by the Commission from the localized determination of what elements are essential for unbundling, which the Act’s arbitration process enables, must be strictly justified and narrowly tailored.”).

¹³¹⁰ See 47 U.S.C. § 252(e)(6).

¹³¹¹ Chairman Powell finds fault with the fact that we do not provide for exclusive appeals of state commission switching decisions to this Commission. *Chairman Powell Statement* at 8. However, the suggestion that we should bar court review of state commission switching decisions seems unnecessary and potentially conflicts with the statute. See *Local Competition Order*, 11 FCC Rcd at 15563, para. 124 (“Pursuant to section 252(e)(6), a party aggrieved by a state commission arbitration determination under section 252 has the right to bring an action in federal district court.”); 47 U.S.C. § 252(e)(6) (“In any case in which a State commission makes a determination under this section, any party aggrieved by such determination may bring an action in an appropriate Federal district court to determine whether the agreement or statement meets the requirements of section 251 of this title and this section.”).

¹³¹² Letter from Herschel L. Abbott, Jr., Vice President – Government Affairs, BellSouth *et al.*, to Michael K. Powell, Chairman, FCC at 2, in Letter from Cronan O’Connell, Vice President – Federal Regulatory, Qwest, to Marlene H. Dortch, Secretary, FCC, CC Docket No. 01-338 (filed Nov. 19, 2002) (RBOC Joint Nov. 19, 2002 *Ex Parte* Letter).

¹³¹³ RBOC Joint Nov. 19, 2002 *Ex Parte* Letter at 4.

¹³¹⁴ See, e.g., *infra* paras. 493-524.

¹³¹⁵ Similarly, contrary to the dissents’ assertions, we did not unlawfully delegate authority to the states. The dissents’ assertions that we have failed to provide state commissions sufficient guidance in their decisionmaking is inconsistent and difficult to understand, see *Chairman Powell Statement* at 5-9; *Commissioner Abernathy Statement* at 7-8, as our approach is essentially identical to our treatment of dedicated transport and loops, which Chairman (continued....)

2. Background

429. We note that an important function of the local circuit switch is as a means of accessing the local loop.¹³¹⁶ Competitive LECs can use their own switches to provide services only by gaining access to customers' loop facilities, which predominately, if not exclusively, are provided by the incumbent LEC. Although the record indicates that competitors can deploy duplicate switches capable of serving all customer classes, without the ability to combine those switches with customers' loops in an economic manner, competitors remain impaired in their ability to provide service. Accordingly, it is critical to consider competing carriers' ability to have customers' loops connected to their switches in a reasonable and timely manner.

430. In addition, incumbent LEC local circuit switching performs several specific functions, including connecting loop facilities to the network, switching loops to other lines and trunks, and providing service capabilities to customers, such as dial tone and vertical features. In prior orders addressing the unbundling of network elements, the Commission concluded that incumbent LECs must provide access to unbundled local switching and defined the switching element to include "line-side facilities," "trunk-side facilities," and all the features, functions, and capabilities of the switch.¹³¹⁷ In the *UNE Remand Order*, the Commission generally found that for the largest 50 MSAs in the country, competitors were impaired without access to switching
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Powell proposed and both he and Commissioner Abernathy fully support. See Parts VI.C.4.d (transport), VI.A.4.b.(ii)(d) (loops). More importantly, the assertion is wrong.

For enterprise switches, we have made a nationwide finding of no impairment, which states can displace only by filing a petition for waiver with this Commission based on explicitly enumerated factors. For mass market switches, we make a nationwide finding of impairment and require the states to conduct a more granular analysis by applying mandatory and exhaustive federal triggers. Specifically, where a state commission determines that there are three or more carriers, unaffiliated with either the incumbent LEC or each other, that are serving mass market customers in a particular market using self-provisioned switches, the state must find no impairment in that market unless it petitions this Commission for a waiver of the trigger. A state must also find no impairment when it determines that there are two or more competitive wholesale suppliers of unbundled local circuit switching, unaffiliated with the incumbent or each other. Indeed it is exactly these kind of factors that Chairman Powell has advocated be used in the past. See *Commissioner Powell Second NPRM Statement* at 3 ("Further, to the extent other facilities-based competitors do not use elements of the incumbent's network, the presence of those competitors in a particular market should be probative in evaluating whether other firms would be impaired in their ability to provide service in that market absent mandated access to the incumbent's elements. It follows directly, then, that assessments of whether an element is necessary to provide service or whether failing to mandate access to that element would impair a new entrant's ability to provide service will vary significantly among different markets, states, and regions."). Where neither of these two triggers is satisfied, we establish specific and mandatory criteria that state commissions must apply to determine whether a market *allows* self-provisioning of switching. It is difficult to see how we could provide more guidance in this analysis. Indeed, we provide considerably more guidance than we do for the states' analysis of dedicated transport, which again both the dissenters voted to approve.

¹³¹⁶ As discussed more fully in our discussion above regarding local loop unbundling, no party disputes that competitors need access to incumbent LECs' loops to compete in the mass market. See *infra* Part VI.A.4.a.

¹³¹⁷ See *Local Competition Order*, 11 FCC Rcd at 15706, para. 412. The line-side facilities include the connection between a loop termination at, for example, a main distribution frame, and a switch line card. Trunk-side facilities include the connection between, for example, trunk termination at a trunk-side cross-connect panel and a trunk card.

only for serving mass market customers.¹³¹⁸ Noting that commenters had not identified the characteristics that distinguish the mass market from medium and large business customers, the Commission found that a significant portion of the mass market could be identified as customers with no more than four access lines. This four-line limit would include nearly all residential users and those business users that, because they had fewer than four access lines, were more similar to residential users than they were to large businesses.¹³¹⁹

431. Although in the past the Commission's rules required incumbent LECs to provide switching unbundled from other network elements, competitors widely use unbundled local circuit switching in combination with incumbent LEC loops and shared transport.¹³²⁰ This combination has been primarily used to serve mass market customers, and within that market, depending on the state, a varying mix of residential and business customers.¹³²¹ In contrast, new entrants that do not rely on incumbent LECs for switching generally obtain UNE-L from incumbent LECs and connect these loops to their switches.¹³²²

432. In the *Triennial Review NPRM*, the Commission sought comment on whether, in light of changed circumstances, it should retain these unbundling requirements and if so, whether it should modify these requirements or the existing definition for unbundled local circuit switching.¹³²³ The Commission also sought comment on the benefits and burdens resulting from continuing unbundled switching and whether there are any alternative, less burdensome options to achieve the goals of the Act.¹³²⁴

¹³¹⁸ *UNE Remand Order*, 15 FCC Rcd at 3821-22, para. 274.

¹³¹⁹ *UNE Remand Order*, 15 FCC Rcd at 3829, paras. 292-93. Specifically, in density zone one of the top 50 MSAs, incumbent LECs that make the EEL combination available were not obligated to provide unbundled local circuit switching to requesting carriers for serving customers with four or more lines. *Id.* at 3822-31, paras. 276-78.

¹³²⁰ Letter from Joan Marsh, Director, Federal Government Affairs, AT&T, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147 at 1 (filed Feb. 13, 2003) (AT&T Feb. 13, 2003 *Ex Parte* Letter).

¹³²¹ The evidence in the record demonstrates that, by the end of 2002, more than ten million residential and small business lines were being served by competitive LECs using unbundled loops combined with unbundled local circuit switching. PACE Jan. 14, 2003 *Ex Parte* Letter at 2; see also George S. Ford, Ph.D, *UNE-Platform, Impairment and Natural Monopoly: Bell Company Estimates of Cost Disparities and Their Consequences* at 1, in Letter from Christopher J. Wright, Counsel for Z-Tel, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147 (filed Jan. 29, 2003) (Z-Tel Jan. 29, 2003 *Ex Parte* Letter). Unbundled local circuit switching usage is heavily concentrated in residential markets: approximately 70% of such lines serve residential customers. Verizon Unbundled Switching Study at 3. In contrast to the other three BOCs, Qwest claims that the majority of customers in its region that are served by unbundled loops combined with unbundled local circuit switching are business customers. *Id.* This appears, however, to be due to Qwest's offering of Centrex lines (typically used for business customers) on a unbundled basis. See *id.*

¹³²² As discussed above, UNE-L describes an entry mode where a competitive LEC combines unbundled loops procured from the incumbent LEC with the competitive LEC's own switching and transport network.

¹³²³ *Triennial Review NPRM*, 16 FCC Rcd at 22806, para. 55.

¹³²⁴ *Id.*

3. Definition of Unbundled Local Circuit Switching Element

433. We define local circuit switching to encompass line-side and trunk-side facilities, plus the features, functions, and capabilities of the switch.¹³²⁵ The features, functions, and capabilities of the switch include the basic switching function of connecting lines to lines, lines to trunks, trunks to lines, and trunks to trunks. In addition, we conclude that the features, functions, and capabilities of the local circuit switching UNE also include the same basic capabilities that are available to the incumbent LEC's customers, such as telephone number, directory listing, dial tone, signaling, and access to 911, and, in the cases described below, operator services and directory assistance.¹³²⁶ The end office switching element includes all vertical features that the switch is capable of providing, including custom calling, CLASS features, and Centrex, as well as any technically feasible customized routing functions. Thus, when a requesting carrier purchases the unbundled local switching element, it obtains all switching features in a single element on a per-line basis. A requesting carrier will deploy individual vertical features on its customers' lines by designating, via an electronic ordering interface, features which the incumbent LEC must activate for particular customer lines.¹³²⁷

434. We disagree with SBC that, to the extent that the switch is unbundled, the Commission should not unbundle access to switch routing tables.¹³²⁸ We include access to switch routing tables as a "function" of the switch because one of the most essential functions a switch performs is to provide routing information that sends a call to the appropriate destination.¹³²⁹ Requiring requesting carriers to engage in the potentially lengthy process of compiling traffic studies and populating routing tables with data in the incumbent LEC's switch would deny a

¹³²⁵ 47 C.F.R. § 51.319(c)(1).

¹³²⁶ See *infra* Part VI.H.2. We readopt here the definitions of "operator services" and "directory assistance" set forth in the *UNE Remand Order*. See *UNE Remand Order*, 15 FCC Rcd at 3892, para. 443.

¹³²⁷ Because signaling networks are accessed via the switch, when carriers purchase switching as a UNE under the terms established in this Order, they shall continue to obtain access to the incumbent LEC's signaling networks. Moreover, because competitive carriers access call-related databases through signaling networks, in such instances where switching remains a UNE, competitive carriers purchasing the switching UNE shall have access to the call-related databases that the signaling networks permit carriers to access. See *infra* Parts VI.G, VI.H. Indeed, in light of the technical complexity associated with making the necessary network modifications to use an incumbent's switch in combination with competitively provided signaling networks and call-related databases, it seems unlikely that incumbents would prefer a different rule. We also note that, as described above, when a requesting carrier purchases unbundled access to the incumbent LEC's switching, the incumbent LEC must also offer unbundled access to operator service and directory assistance (OS/DA) services if the incumbent LEC does not provide customized routing.

¹³²⁸ SBC Comments at 79-81 (arguing that routing tables should not be unbundled because they contain confidential information).

¹³²⁹ See *In the Matter Of Implementation of the Local Competition Provisions in the Telecommunications Act of 1996, Interconnection between Local Exchange Carriers and Commercial Mobile Radio Service Providers*, CC Docket Nos. 96-98, 95-185, Third Order on Reconsideration and Further Notice of Proposed Rulemaking, 12 FCC Rcd 12460, 12486-87, para. 45 (1997) (*Local Competition Third Reconsideration Order*) (rejecting Ameritech's arguments that the Commission should not unbundle switch routing tables).

requesting carrier meaningful access to unbundled local circuit switching to serve customers. Accordingly, consistent with the Commission's finding in the *Local Competition Third Order on Reconsideration*, we find no support for SBC's assertion that the switch as a network element does not include access to the functionality provided by the incumbent LEC's routing tables.¹³³⁰

4. Impairment Analysis

a. Evidence of Switch Deployment

435. In conducting our impairment analysis, we first consider evidence of competitive LEC circuit switch deployment in the relevant customer market. As indicated above, evidence of self-deployment is the best indicator of whether competitive LECs have been able to overcome barriers to entry with respect to facilities deployment.¹³³¹ We find that the extent of competitive LEC circuit switch deployment varies tremendously in the enterprise and mass markets. In particular, we find that the record demonstrates significant nationwide deployment of switches by competitive providers to serve the enterprise market, but extremely limited deployment of competitive LEC circuit switches to serve the mass market.¹³³²

436. There is no dispute in the record that competitive carriers have significantly increased their switch deployment and the number of lines they have served since 1999. Specifically, the record shows that competitive LEC switch deployment has almost doubled in two years, growing from 700 in 1999 to as much as 1,300 in 2001.¹³³³ In addition, more than 200

¹³³⁰ *Local Competition Third Reconsideration Order*, 12 FCC Rcd at 12487, para. 45. Because we continue to require access to routing tables to the extent we unbundle switching, we reject CompTel's argument that proprietary treatment prevents unbundling of such tables, and deny CompTel's petition for reconsideration of this conclusion. CompTel Feb. 17, 2000 Petition for Reconsideration at 17-18.

¹³³¹ See *supra* Part V.B.1.d.

¹³³² Chairman Powell offers contradictory arguments to support his opposition to unbundled switching. He first argues that there are sufficient switching alternatives already used to serve the mass market and then argues that such alternatives will not be deployed so long as unbundled switching is available. Compare Chairman Powell Statement at 11-12 with 13. Chairman Powell also suggests that any impairment determination for switching should be overridden by "the social and economic costs of unbundling switching" and thus there is no need even to conduct an impairment analysis. We disagree that this Commission should reach such a conclusion for the entire nation on the basis of the current record and believe an impairment analysis should be conducted. Moreover, Chairman Powell seems to focus only on the costs or benefits depending on whether or not he wants to retain access to an element. For example, with respect to line sharing he ignores the impairment standard and argues that line sharing should be retained because it "has generated clear and measurable benefits for consumers." Chairman Powell Statement at 1. With regard to switching he appears to disregard the "clear and measurable benefit to consumers" standard and instead focuses only on the costs of unbundling.

¹³³³ See, e.g., BOC UNE Fact Report 2002 at II-1-II-2, II-4 (citing numbers based on Jan. 2002 LERG data and a New Paradigm Resources Group (NPRG) Report based on year-end 2001 data); *Local Competition Rules Must Encourage Investment and Job Growth in the Telecommunications Industry*, in Letter from Debbie Goldman, Research Economist, Research and Development Department, Communications Workers of America, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147 at 3 (filed Feb. 6, 2003) (CWA Feb. 6, 2003 *Ex Parte* Letter). For example, BellSouth estimates that there are 284 competitive voice switches deployed in its region. See Letter from Robert T. Blau, Vice President – Executive and Federal Regulatory Affairs, BellSouth, to Marlene (continued....)

competitive LECs of all sizes have deployed local voice switches.¹³³⁴ The record also shows that vendors have produced switches (at declining prices) that are readily available for purchase.¹³³⁵ These switches are capable of serving significantly broader service areas than traditional incumbent LEC rate centers.¹³³⁶

437. Incumbent LECs claim that the Commission should remove virtually all unbundling obligations regarding local switching on a national basis simply because competitive carriers have deployed 1,300 switches and are serving, according to the BOC UNE Fact Report 2002, over 16 million lines with those switches.¹³³⁷ This argument, however, ignores significant differences in the evidence concerning the enterprise market and mass market. The record is replete with evidence showing that competitive LECs are successfully using their own switches to serve large business customers that require high-capacity loops (which can be connected to

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H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 02-33, Attach. at 10 (filed Jan. 24, 2003) (BellSouth Jan. 24, 2003 *Ex Parte* Letter). BellSouth estimates that, since the release of the *UNE Remand Order*, the number of competitive LEC switches in the Atlanta, Miami, and New Orleans MSAs have doubled. BellSouth Comments at 79. *But see* Letter from Kimberly Scardino, Senior Counsel, WorldCom, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147 at 2 (filed Jan. 31, 2003) (WorldCom Jan. 31, 2003 Switching *Ex Parte* Letter). WorldCom argues that the record demonstrates that the 1,300 switches cited in the BOC UNE Fact Report are overstated by at least 33% once various inaccuracies are corrected. First, WorldCom states that the BOCs' estimate of competitive LEC switches includes "hundreds of switches" that can only be used to serve customers with high-capacity connections or PBXs. *Id.* at 2. Second, WorldCom states that the record demonstrates that the BOC UNE Fact Report overstates the number of switches deployed by four competitive LECs by 105 switches, or 8%. *Id.* at 2; Letter from Dana Frix, Counsel for Bridgecom and Metropolitan Telecommunications, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147 (filed Feb. 5, 2003) (Bridgecom Feb. 5, 2003 *Ex Parte* Letter). WorldCom's criticisms of the BOCs' computations, however, would also apply to the 700 competitive switches the BOCs claim existed in 1999, resulting in a lower figure. WorldCom's filing does not set forth the effects its analysis would have on a year-to-year basis. Thus, even taken at face value, that filing fails to refute the central point that competitive switching deployment has risen dramatically.

¹³³⁴ BOC UNE Fact Report 2002 at II-1. The BOC calculation of 1,300 competitive LEC local circuit switches does not include packet switches. BOC UNE Fact Report 2002 at I-1 (stating that competitive LECs have deployed approximately 1,700 packet switches). We note that the record reflects that competitive LEC deployed packet switches are not used to serve analog mass market customers. *See, e.g.,* WorldCom Jan. 31, 2003 Switching *Ex Parte* Letter at 3 ("As WorldCom and other CLECs have demonstrated, the types of circuits provisioned and the equipment used to serve business customers are quite different than those used to serve analog residential and small business customers.").

¹³³⁵ Z-Tel Reply at 45.

¹³³⁶ BOC UNE Fact Report 2002 at II-1.

¹³³⁷ BellSouth Comments at 77-90; Qwest Comments at 20-31; Verizon Comments at 94-105. Qwest would eliminate the unbundled switching requirements in areas where multiple competitive LECs have deployed their own switches. *See* Letter from Cronan O'Connell, Vice President – Federal Regulatory, Qwest, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147 (filed Feb. 13, 2003) (Qwest Feb. 13, 2003 *Ex Parte* Letter). For those LATAs where competitive LECs have deployed three or more local exchange voice switches, Qwest would have this Commission eliminate local circuit switching as a UNE. The Qwest proposal assumes that if three competitive LEC switches physically exist in a LATA, a wholesale market for local switching will develop, thereby enabling competitive LECs to refrain from deploying their own switches to serve customers.

competitive carrier switches with few of the obstacles that affect voice-grade loops).¹³³⁸ For example, BiznessOnline.Com cites data compiled by a coalition of competitive carriers which examined six representative markets and found that approximately 90 percent of the loops used by competitive carriers in these markets are DS1 capacity or higher loops.¹³³⁹ Specifically, according to the BOCs, competitive LECs are, as of year-end 2001, serving at least 13 million business lines over their own switches.¹³⁴⁰

438. On the other hand, the record indicates that competitive LECs have self-deployed few local circuit switches to serve the mass market.¹³⁴¹ The BOCs claim that, as of year-end 2001, approximately three million residential lines were served via competitive LEC switches.¹³⁴² Others argue that this figure is significantly inflated.¹³⁴³ Even accepting that figure, however, it represents only a small percentage of the residential voice market. It amounts to less than three percent of the 112 million residential voice lines served by reporting incumbent LECs.¹³⁴⁴

439. We find, moreover, that the BOCs' competitive LEC residential line count does not accurately depict the ability of an entering competitive LEC to overcome the barriers to entry generated by the hot cut process, and to serve the mass market using incumbent LEC loops. Specifically, many of the lines cited by the incumbents are served by carriers that, for one reason or another, are able to use their own loops. We have made detailed findings that competitors are impaired without access to incumbents' voice-grade local loops.¹³⁴⁵ Indeed, no party seriously

¹³³⁸ See, e.g., ATX Jan. 22, 2003 *Ex Parte* Letter at 1-2, 4 (stating that competitive carriers are deploying switches to serve high volume customer locations that require DS1 or higher loop connectivity); WorldCom Jan. 31, 2003 Switching *Ex Parte* Letter at 1; AT&T *et al.* Feb. 3, 2003 *Ex Parte* Letter at 2. Since 1999, AT&T has continued to deploy circuit switches, but uses those switches almost exclusively to provide service to large businesses. AT&T Comments at 207-09, 219; AT&T Comments, Attach. A, Declaration of Ellyce Brenner (AT&T Brenner Decl.) at paras. 24-29; see also Z-Tel Comments at 48-50 ("The fact that some CLECs have deployed switches to serve the large business market or broadband market does not support the conclusion that CLECs are not impaired without access to unbundled switching to serve the mass market."); CompTel Comments at 62-63.

¹³³⁹ See BiznessOnline.Com Feb. 14, 2003 *Ex Parte* Letter at 23 (citing CCG July 17, 2002 CLEC Survey *Ex Parte* Letter at Table 4).

¹³⁴⁰ BOC UNE Fact Report 2002 at II-1; Verizon Unbundled Switching Study at 3.

¹³⁴¹ Letter from Marc A. Goldman, Counsel for WorldCom, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147 at 2 (filed Nov. 13, 2002) (WorldCom Nov. 13, 2002 Unbundled Switching *Ex Parte* Letter).

¹³⁴² BOC UNE Fact Report 2002 at II-1. This number may count only competitor lines in BOC-served territories, excluding the former GTE and SNET territories. BOC UNE Fact Report 2002 at II-4, Table 2.

¹³⁴³ BiznessOnline.Com Feb. 14, 2003 *Ex Parte* Letter at 24; Z-Tel Reply at 41; AT&T Pfau Reply Decl. at paras. 28-31.

¹³⁴⁴ Industry Analysis and Technology Division, Wireline Competition Bureau, *Statistics of Communications Common Carriers September 2002 Report* at Table 2.6. The 112 million line figure represents the number of residential access lines for incumbent LECs that are required to report residential line figures to the Commission. *Id.*

¹³⁴⁵ See *supra* Part VI.A.4.a.(v).(a).

contends that competitors should be required to self-deploy voice-grade loops.¹³⁴⁶ Thus, for the typical entrant, entry into the mass market will likely require access to the incumbent's loops, using the UNE-L strategy. As described below, this strategy raises operational and economic difficulties associated with accessing the loop.¹³⁴⁷ Indeed, as discussed above, a crucial function of the incumbent's local circuit switch is to provide a means of accessing the local loop.¹³⁴⁸

440. Of the three million residential lines purportedly served by competitive switches at year-end 2001, approximately 2.2 million lines were served by cable telephony providers that bypass the incumbent LECs' networks entirely.¹³⁴⁹ Of the remaining access lines, Z-Tel offers evidence that most are served by large, independent incumbent LECs expanding into adjacent areas and by cable overbuilders.¹³⁵⁰ Z-Tel then estimates that only 200,000 mass market lines are served through UNE-L.¹³⁵¹ Accordingly, much of the deployment relied upon by the BOCs in fact provides no evidence that competitors have successfully self-deployed switches as a means to access the incumbents' local loops, and have overcome the difficulties inherent in the hot cut process.¹³⁵²

441. Additionally, the BOCs' suggestion that our analysis should treat switches deployed to serve large enterprise customers exactly the same as those deployed to serve mass market customers ignores the substantial modifications, and attendant costs, necessary to serve

¹³⁴⁶ Nor is there any wholesale market for such loops. See Access Integrated Networks Reply at 13; Allegiance Reply at 32-33; Covad Comments at 35-37; WorldCom Reply at 87.

¹³⁴⁷ See *supra* Part VI.D.6.a.(i).

¹³⁴⁸ See *supra* Part VI.D.2.

¹³⁴⁹ Industry Analysis and Technology Division, Wireline Competition Bureau, *Local Telephone Competition: Status as of December 31, 2001* (July 2002) at Table 5 (*Local Telephone Competition July 2002 Report*). As noted above, in mid-2002, cable telephony represented 2.6 million access lines, a 39% growth over the previous year. *Id.* at Table 5. Virtually all cable subscribers are mass market customers. See AT&T Comments at 224 (noting that "virtually no businesses subscribe to cable"); see also WorldCom Comments, Attach. A at 21 ("The cable industry provides service to almost no large business customers."), 37 ("Cable systems were for the most part built to serve residential and suburban areas."), 35 ("Cable television systems do not have the capacity to serve large numbers of business customers requiring DS-1 and higher-speed services."). The BOCs' arguments confirm that cable is primarily suited for service to residential customers, rather than to business customers. See, e.g., BellSouth Comments at 38-41; SBC Comments at 53, 56; Verizon Comments at 12-14.

¹³⁵⁰ Z-Tel Reply at 43-46; see also WorldCom Reply at 143-44 ("Others such as TDS Telecom and ALLTEL are using their monopoly incumbent LEC base to expand into neighboring incumbent territories."). Z-Tel argues that the 1996 Act was not intended to foster local competition only by companies with the resources of cable or incumbent assets. Z-Tel Reply at 41-43. In addition, WorldCom argues that the small group of competitive LECs that have deployed switches serving the mass market, including the cable overbuilders, focus only on high-density areas and that their future expansion is in doubt. WorldCom Reply at 143-44.

¹³⁵¹ Z-Tel Reply at 48-49.

¹³⁵² We note, however, that some of this competitive deployment could be considered by states in determining whether the triggers discussed below have been satisfied in specific markets.

mass market customers with an enterprise switch. For example, in order to enable a switch serving large enterprise customers to serve mass market customers, competitive LECs may need to purchase additional analog equipment, acquire additional collocation space, and purchase additional cabling and power.¹³⁵³ Thus, while we agree that deployment of an enterprise switch is one piece of evidence relevant to the possibility of serving mass market customers – and, indeed, our impairment analysis takes such deployment into account, as discussed below – the fact remains that competitors using their own switches are currently serving extremely few mass market customers, through enterprise switches or otherwise.¹³⁵⁴

442. Moreover, because no party offers evidence to show that third parties are currently offering switching on a wholesale basis – that is, selling switching capacity to third-party carriers to use in their offerings – we find that no significant third-party alternatives to unbundling local switching exist. Thus, we are unable to find that this evidence demonstrates that competitive LECs are able to economically enter the mass market without unbundled access to incumbent LEC circuit switching.

443. *Intermodal Switching Alternatives.* We determine that, although the existence of intermodal switching is a factor to consider in establishing our unbundling requirements, current evidence of deployment does not presently warrant a finding of no impairment with regard to local circuit switching.¹³⁵⁵ In particular, we determine that the limited use of intermodal circuit switching alternatives for the mass market is insufficient for us to make a finding of no

¹³⁵³ See, e.g., WorldCom Nov. 18, 2002 Transition to UNE-L *Ex Parte* Letter at 7. WorldCom states that in order to modify one of its switches in Manhattan serving enterprise customers to serve the mass market, WorldCom would be required to: purchase and install analog-capable equipment; increase the existing collocation cage space by 200 square feet; and pay Verizon for additional cabling and power. *Id.*

¹³⁵⁴ The dissents' assertion that enterprise switches should be considered in our mass market triggers ignores these substantial differences between the switches serving the different markets. *Chairman Powell Statement* at 6; *Commissioner Abernathy Statement* at 4-5. Most importantly, as explained above, unlike mass market loops, facilities used to serve enterprise customers are typically not pre-wired to incumbent LEC switches, allowing competing carriers to avoid the costs and service disruptions associated with hot cuts. The dissents also ignore the substantial differences in the mass market and the enterprise market – such as the fact that enterprise customers generally offer increased revenue opportunities and are more willing to enter long-term contracts than are mass market customers. These differences elsewhere led them to agree to “conduct separate . . . impairment analyses based on [among other things] two relevant customer classes – the mass market and the enterprise market.” See *supra* para. 197. Our loops discussion, for example, conducts an entirely separate analysis and arrives at different conclusions for loops used to serve mass market customers than it does for loops used to serve enterprise customers. See *supra* Part VI.A. While we do not make the same distinction for transport, that is only because transport is used to aggregate significant volumes of traffic, and neither the economics nor the operations significantly differ for mass market and enterprise customers. As we indicate, however, that is an exception to the practice adopted by the Commission and explicitly approved by both the dissents. See *supra* para. 197.

¹³⁵⁵ We note that our analysis of intermodal switching alternatives is informed by the evidence of intermodal alternatives relating to local loops. Because commenters devoted a significant amount of discussion to cable and wireless facilities as substitutes for local loops, evidence of intermodal alternatives is also discussed under our analysis of local loop unbundling.

impairment in this market, especially since these intermodal alternatives are not generally available to new competitors.¹³⁵⁶

444. The Commission's *Local Competition Report* shows that only about 2.6 million homes subscribe to cable telephony on a nationwide basis,¹³⁵⁷ even though there are approximately 103.4 million households in the United States.¹³⁵⁸ Moreover, the record indicates that circuit-switched cable telephony is only available to about 9.6 percent of the total households in the nation.¹³⁵⁹ Ultimately, because retrofitting cable infrastructure to support cable telephony requires substantial investment and modification, and because significant technical and operational issues must still be resolved for those cable operators that have not already augmented their networks to offer cable telephony (which are the majority of the cable networks currently in operation), it is difficult to predict at what point cable telephony will be deployed on a more widespread and ubiquitous basis.¹³⁶⁰

445. We also find that, despite evidence demonstrating that narrowband local services are widely available through CMRS providers, wireless is not yet a suitable substitute for local circuit switching.¹³⁶¹ In particular, only about three to five percent of CMRS subscribers use their service as a replacement for primary fixed voice wireline service, which indicates that wireless switches do not yet act broadly as an intermodal replacement for traditional wireline circuit

¹³⁵⁶ BOC UNE Fact Report 2002 at IV-8 to IV-14. Current estimates are that only 1.7% of U.S. households rely on other technologies to replace their traditional wireline voice service. Allegiance Reply at 35.

¹³⁵⁷ *Local Telephone Competition December 2002 Report* at 2. In their joint BOC UNE Fact Report 2002, the BOCs claim that 1.5 million homes subscribe to cable telephony. BOC UNE Fact Report 2002 at IV-10.

¹³⁵⁸ See *Telephone Subscribership November 2002 Report* at Table 1. According to Verizon, cable telephony providers already offer circuit switched telephone services to some ten million households nationwide, already serve more than two million lines, and are adding roughly 100,000 lines each month. See Letter from Michael E. Glover, Senior Vice President and Deputy General Counsel, Verizon, to William F. Maher, Chief, Wireline Competition Bureau, FCC, CC Docket Nos. 01-338, 96-98, 98-147 at 1 (dated Jan. 10, 2003) (Verizon Jan. 10, 2003 Switching *Ex Parte* Letter) in Letter from Ann D. Berkowitz, Project Manager – Federal Affairs, Verizon, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147 (filed Jan. 10, 2003); see also *Unbundling Switching, UNE-P, and Hot Cuts*, SBC Presentation to FCC, in Letter from Brian J. Benison, Associate Director – Federal Regulatory, SBC, to Marlene H. Dortch, Secretary, FCC, CC Docket No. 01-338 at 10 (filed Jan. 7, 2003) (SBC Jan. 7, 2003 *Ex Parte* Letter).

¹³⁵⁹ BOC UNE Fact Report 2002 at II-11, IV-10 (noting that Cox has the capability to offer cable telephony to “75 to 95 percent” of the consumers in Rhode Island).

¹³⁶⁰ BellSouth Comments at 38, 40 (citing *Annual Assessment of the Status of Competition in the Market for the Delivery of Video Programming*, CS Docket No. 01-129, 8th Annual Report, FCC 01-389, at para. 34 (2001)).

¹³⁶¹ The Commission, however, recently relied on wireless broadband PCS substitution to support Track A findings in two section 271 proceedings where residential customers in New Mexico and Nevada had replaced their landline service with wireless service. *SBC Nevada 271 Order*, 18 FCC Rcd at 7206, para. 18; *Qwest New Mexico 271 Order*, 18 FCC Rcd at 7336 n.53; see also *BellSouth Louisiana II 271 Order*, 13 FCC Rcd at 20606, 20622-23, paras. 11, 29-30. This, however, was based on a different analysis than that required under the necessary and impair standards.

switches.¹³⁶² Lastly, the record demonstrates that wireless CMRS connections in general do not yet equal traditional landline facilities in their quality and their ability to handle data traffic.¹³⁶³

446. Moreover, both cable and CMRS are potential alternatives not simply for switching, but for the entire incumbent LEC telephony platform, including the local loop. We are unaware of any evidence that either technology can be used as a means of accessing the incumbents' wireline voice-grade local loops.¹³⁶⁴ Accordingly, neither technology provides probative evidence of an entrant's ability to access the incumbent LEC's wireline voice-grade local loop and thereby self-deploy local circuit switches. Rather, competition from cable telephony and CMRS providers only serves as evidence of entry using *both* a self-provisioned loop *and* a self-provisioned switch.

447. *Impact of Unbundling on Switching Deployment.* Commenters have raised questions regarding the impact of unbundling on carriers' incentives to construct and deploy switching facilities.¹³⁶⁵ We find that the record evidence on this matter is inconclusive. As we

¹³⁶² See *Seventh Wireless Report 2002* at 32 n.208; see also BOC UNE Fact Report 2002 at IV-12 (citing *Sixth Wireless Report 2001*, 16 FCC Rcd at 13381 n.211).

¹³⁶³ BellSouth Comments at 41 (stating that wireless is ineffective in transmitting large amounts of data at high speeds); see also AT&T Reply at 25, 162-63 (stating that wireless service is engineered to provide only roughly 70% call completion rate while wireline call completion rates exceed 99%).

¹³⁶⁴ See *infra* Part V.B.

¹³⁶⁵ The dissents also argue that triggers based on deployment will never be met for switching because the unbundling of switching itself creates such a disincentive for deployment that neither competitors nor incumbents will build new switching facilities. *Chairman Powell Statement* at 5-6; *Commissioner Abernathy Statement* at 4-5. The dissents offer no evidence whatsoever to support this conclusion. To the contrary, the Chairman himself acknowledges that, despite the current nationwide availability of unbundled switching, "a number of competitors have overcome whatever economic impediments exist and are using that switching capability to serve mass market customers." *Chairman Powell Statement* at 7. Moreover, neither Chairman Powell nor Commissioner Abernathy explain how their disincentives argument is consistent with the conclusions they support throughout the rest of the Order that the best evidence of lack of impairment is "evidence that new entrants are providing retail services in the relevant market using non-incumbent LEC facilities." See *supra* paras. 93-94. Indeed, in both the transport and high-capacity loop sections of the Order, they have agreed to eliminate unbundling obligations only after a finding that there is sufficient deployment of alternative facilities. As both dissenters have agreed in the transport section, the probability of a disincentive effect from unbundling is addressed by establishing relatively low thresholds for the triggers. See *supra* para. 413 & note 1274. Thus, for example, the triggers for the transport network element eliminate unbundling requirements on a particular route where there are three competitive self-providers of transport or two competitive wholesale providers. These are the same thresholds that we use for eliminating unbundled switching. In addition, similar to transport and loops, even where there is no deployment and these triggers are not met, states must consider whether potential deployment is possible based on specific criteria consistent with our impairment standard.

Looking at the record on this point, we found the evidence of disincentives inconclusive at best. The incumbents' evidence purports to show disincentives consisted of studies alleging that as lines served by unbundled loops combined with unbundled local circuit switching increases in a given state, the number of facilities based competitive LEC-owned lines decreases. However, as explained in the Order, these studies suffer from fundamental flaws that undermine their probative value. See *infra* note 1374. At the same time, there were studies purporting to show that unbundling obligations in fact encourage carriers to make capital investments in facilities. See *infra* note (continued....)

have explained above, section 251(d)(2)'s "at a minimum" clause permits us to consider, when

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1373. In the end, we found neither compelling. We found significantly more probative the evidence that in areas where competitors have their own switches for other purposes (e.g., enterprise switches), they are not converting them to serve mass market customers and are instead relying on unbundled loops combined with unbundled local circuit switching. Given the fixed costs already invested in these switches, competitors have every incentive to spread the costs over a broader base. Their failure to do so bolsters our findings that significant barriers caused by hot cuts and other factors make entry uneconomic.

Chairman Powell's suggestion that the number of lines that competing carriers serve with their own switches has decreased while the number of lines served with unbundled switching has increased is simply wrong. *See Chairman Powell Statement* at 6. In fact, Commission data show that the number of customers served with self-deployed switches has consistently increased. For example, incumbent LECs provided about 3.2 million unbundled loops without switching in June 2001, about 3.7 million unbundled loops without switching in December 2001, about 4.1 million unbundled loops without switching in June 2002, and about 4.3 million unbundled loops without switching in December 2002. *See Local Telephone Competition*, Status as of December 31, 2002 (June 2003); *Local Telephone Competition*, Status as of June 30, 2002 (December 2002); *Local Telephone Competition*, Status as of December 31, 2001 (July 2002); *Local Telephone Competition*, Status as of June 30, 2001 (February 2002); *Local Telephone Competition*, Status as of December 31, 2000 (May 2001); *Local Telephone Competition*, Status as of June 30, 2000 (December 2000); *Local Telephone Competition*, Status as of December 31, 1999 (August 2000). Thus, the availability of unbundled switching does not appear to have stopped the development of facilities-based competition. While Chairman Powell is correct that, in certain states, the rate of growth in lines using unbundled switching has increased at a higher rate than has the rate of growth for lines served with competitively deployed switches, that fact falls far short of showing any significant disincentive effect from the availability of unbundled switching. More importantly, this data is fully consistent with the evidence in the record that significant barriers caused by hot cuts and other factors make self deployment uneconomic. *See supra* paras. 466-470. For example, the record shows that AT&T spent over \$11 billion in an effort to use its own switches with unbundled loops to serve low-volume business customers, but that this effort failed as a result of hot cut problems. *See AT&T Comments* at 218. Customer conversions took an average of 45 days from the time of sale to the establishment of dial tone. *See id.* at 219. Service outages during cutovers occurred 6 to 9% of the time. *See id.* As a result, over half of AT&T's orders were cancelled prior to actual conversion. *See id.* Chairman Powell offers no response whatsoever to this evidence or the other evidence in the record on the barriers caused by hot cuts.

Moreover, the dissents fail to consider the incentives created by our decisions on packet switching and advanced services. Specifically, we no longer unbundle packet switching and the advanced networks used with such switching. This means that to the extent there are significant disincentives caused by unbundling of circuit switching, incumbents can avoid them by deploying more advanced packet switching. This would suggest that incumbents have every incentive to deploy these more advanced networks, which is precisely the kind of facilities deployment we wish to encourage. At the same time, competitors have incentives to build comparable facilities to compete. And because we count competitive deployment of packet switches – and other intermodal facilities – in our circuit switching triggers, such deployment can lead to the elimination of unbundling requirements on circuit switches.

In the end, the dissents would simply eliminate unbundled switching and wait for competition to arise from other platforms. We have chosen to eliminate unbundling more gradually, as we do for other elements, by both attacking the causes of impairment for circuit switching and encouraging intermodal competition through the switching triggers. Unlike the approach advocated by the dissents, our approach maintains appropriate incentives without throwing away the competition that exists today.

Finally, we note that to the extent Chairman Powell and Commissioner Abernathy are concerned that the price of using unbundled switching is too attractive when compared with using self-deployed switches, this issue is more appropriately addressed in the forthcoming proceeding on TELRIC pricing.

appropriate, factors that are closely tied to the purposes of the statute but distinct from the “necessary” and “impair” standards in reaching an unbundling determination.¹³⁶⁶ Above, we have exercised this authority in our analysis of FTTH and hybrid loops, where we have given weight to section 706’s directive that the Commission “encourage the deployment on a reasonable and timely basis of advanced telecommunications capability to all Americans.”¹³⁶⁷ While section 251(d)(2) permits us to consider factors other than the statutory “necessary” and “impair” standards, we are mindful of the courts’ admonitions that we not extend incumbents’ unbundling obligations more widely than required to fulfill the purposes of the Act. As explained above, we thus apply the “at a minimum” language with due restraint. Here, we consider investment incentives in the context of unbundled local circuit switching, but conclude that given the insufficient record evidence on this issue and the fact that the goals of section 706 are not directly implicated in the context of switching, our findings of impairment are not overcome in this context.

448. Although our consideration of investment incentives in our FTTH and hybrid loops decisions is largely driven by the Act’s direction to do so contained in section 706, we believe that consideration of economic incentives, pursuant to section 251(d)(2)’s “at a minimum” language, is appropriate in the context of unbundled circuit switching because such consideration accords weight to the Act’s aim of encouraging facilities-based competition. As explained above, the Supreme Court in *Verizon* emphasized that the Commission has discretion to evaluate the role of investment incentives when implementing the Act’s local competition provisions.¹³⁶⁸ We note, however, that the particular incentives primarily at issue here differ in a key respect from those at issue in the FTTH and hybrid loops discussion above. There, the primary inquiry involved the *incumbents’* incentives to develop and deploy new broadband-capable loop facilities if those facilities were subject to unbundling. Here – where the incumbents already operate ubiquitous legacy circuit switching networks – our inquiry into unbundling’s impact on investment incentives focuses primarily on the *competitive LECs’* incentives to deploy alternative switching facilities. In fact, given that we do not require packet switches to be unbundled, there is little, if any, basis for an argument that our treatment of circuit switches gives LECs a disincentive to upgrade their switches.

¹³⁶⁶ See *supra* Part V.D. Section 251(d)(2) provides that “the Commission shall consider, *at a minimum*, whether . . . the failure to provide access to such network elements would impair the ability of the telecommunications carrier seeking access to provide the services that it seeks to offer.” 47 U.S.C. § 251(d)(2) (emphasis added).

¹³⁶⁷ The Commission *considers* services with upstream and downstream speeds in excess of 200 kbps to display “advanced telecommunications capability.” *Third Section 706 Report 2002*, 17 FCC Rcd at 2850, para. 9.

¹³⁶⁸ *Verizon*, 535 U.S. at 500; see also *id.* at 523 (“In short, the incumbents have failed to carry their burden of showing unreasonableness to defeat the deference due the Commission.”). In *Verizon*, the Court recognized that it was in no position to assess the precise economic significance of the parties’ opposing arguments regarding incentives created by TELRIC, and that it “ha[d] no idea whether a different forward-looking pricing scheme would have generated even greater competitive investment than the \$55 billion that the entrants claim.” *Id.* at 517. Thus, it merely acknowledged that the Commission had been forced to decide whether it was “better to risk keeping more potential entrants out, or to induce them to compete in less capital-intensive facilities with lessened incentives to build their own bottleneck facilities,” and found that in such circumstances, “[i]t was not obviously unreasonable for the FCC to prefer the latter.” *Id.* at 510.

449. The parties submit conflicting evidence regarding the relationship between unbundled local circuit switching and investment incentives. The incumbent LECs claim that unbundling obligations undermine competitive LECs' incentives to invest in local circuit switching facilities because the competitive carriers will always prefer to use the incumbent's switching facilities, which are available to them at TELRIC rates that assume the use of the most efficient technologies available.¹³⁶⁹ For example, the incumbents' *UNE-P and Investment* study asserts that as unbundled local circuit switching usage increases in a given state, the number of competitive LEC-owned lines decreases.¹³⁷⁰ Competitive LECs deny that elimination of unbundled local switching will result in additional competitive LEC switch deployment.¹³⁷¹ In support of their contentions, however, the competitive carriers advance their own studies purporting to show that unbundling obligations in fact encourage carriers to make capital investments to meet increasing competition.¹³⁷² We find, however, that the economic studies presented by both sides of the industry suffer from several fundamental flaws that undermine their probative value.¹³⁷³ Thus, we are unable to conclude from the parties' studies that the

¹³⁶⁹ Incumbents also argue that local circuit switch unbundling obligations undermine their *own* incentives to make capital investment in their own facilities because competitive LECs are free to use those same facilities, at TELRIC rates, to compete for the incumbent LECs' customers. See, e.g., SBC Comments at 6.

¹³⁷⁰ Verizon Unbundled Switching Study. The study consisted of a univariant regression, which AT&T characterizes as a correlation study. See also Verizon Reply, App. 1, Harold Ware, *UNE-P Use and Facilities-Based Competition, in New York and Other States*, in Z-Tel Nov. 7, 2002 *Ex Parte* Letter. The study regresses competitive LEC facilities based access lines per 1,000 BOC access lines against competitive LEC access lines served by unbundled loops combined with unbundled local circuit switching per 1,000 BOC access lines for all states where competitive LEC access lines (unbundled loops combined with unbundled local circuit switching and full facilities) combined exceed 10% of BOC lines. Verizon Unbundled Switching Study at 3-4.

¹³⁷¹ AT&T Comments at 222-23; WorldCom Reply at 153-57. WorldCom, for example, claims that it has built more switches in states where unbundled switching has been available without restriction. See also Letter from Lawrence R. Freedman, Counsel for WorldNet, to Marlene H. Dortch, Secretary, FCC, CC Docket No. 01-338 at 3 (filed Jan. 6, 2003) (WorldNet Jan. 6, 2003 *Ex Parte* Letter) (stating that its business plan is largely dependent upon its ability to purchase unbundled loops combined with unbundled local circuit switching from the incumbent as a transition step). SBC challenges this claim. See SBC Jan. 7, 2003 *Ex Parte* Letter at 6 (stating that, in New York, AT&T and WorldCom operate 28 switches and serve over one million residential customers using unbundled incumbent LEC local circuit switching, but have not converted a single residential customer to their switches); CWA Jan. 14, 2003 *Ex Parte* Letter. We find, however, that the fact that competitors have not converted unbundled loops combined with unbundled local circuit switching or served residential customers with existing switches only serves to demonstrate the barriers to such service. AT&T Comments at 207-08, 224-31; BiznessOnline.Com Feb. 14, 2003 *Ex Parte* Letter at 23-24; Z-Tel Comments at 34-36; WorldCom Jan. 8, 2003 Switching *Ex Parte* Letter at 3-4. Given the sunk costs already invested in deployed switches, competitors have every incentive to spread those costs over a larger base. AT&T Comments at 211-12; BiznessOnline.Com Feb. 14, 2003 *Ex Parte* Letter at 2-3; NewSouth Reply at 29-30; Z-Tel Comments at 52-54 & n.113. Barriers caused by hot cuts and other factors simply make this uneconomic. AT&T Comments at 207-08, 212, 214-17; BiznessOnline.Com Feb. 14, 2003 *Ex Parte* Letter at 8-11; NewSouth Reply at 26-28; Z-Tel Comments at 35-36.

¹³⁷² See, e.g., AT&T Comments at 65-97; AT&T Willig Decl.; Z-Tel Oct. 7, 2002 Innovation *Ex Parte* Letter at 5; AT&T Willig Stimulating Investment at 1-7, 28-39.

¹³⁷³ The studies submitted by the incumbent LECs, such as Verizon Unbundled Switching Study, are overly simplified correlation models or state-to-state comparisons lacking adequate explanation of relevant variables. BOC (continued....)

availability of unbundled local circuit switching either depresses or stimulates infrastructure investment.

450. Section 706's directive to promote advanced telecommunications is not undermined by the unbundling of local circuit switching because such unbundling imposes requirements with respect to the legacy telephone network, and thus does not deter carriers' investment in advanced telecommunications capabilities. Accordingly, we do not believe that section 251(d)(2)'s "at a minimum" language justifies any departure from our impairment findings in the switching context.¹³⁷⁴

5. DS1 Enterprise Customers

451. We find that the record evidence establishes that there are few barriers to deploying competitive switches to serve customers in the enterprise market at the DS1 capacity and above, and thus no operational or economic impairment on a national basis.¹³⁷⁵

(Continued from previous page) —————

Shelanski Decl. at 22; AT&T Oct. 15, 2002 *Ex Parte* Letter, Attach. C at 12, 14 (AT&T Pfau Correcting) (asserting that the study supposedly showing how the high level of unbundled loops combined with unbundled local circuit switching equates to low facilities-based competitive LEC access lines simply plots competitive LEC facilities based access lines against competitive LEC unbundled loops combined with unbundled local circuit switching lines but does not include all states).

¹³⁷⁴ Several incumbent LECs express particular opposition to any outcome that would maintain the availability of unbundled loops combined with unbundled local circuit switching. *See, e.g.*, Verizon Comments at 6; SBC Comments at 76. This opposition appears to stem from the incumbent LECs' claim that the TELRIC rates they obtain for UNEs do not, in fact, compensate them for the costs associated with provisioning these UNEs to requesting carriers. *See, e.g.*, Verizon Comments at 32-33; SBC Comments at 34-35; BellSouth Reply at 43, 51 n.118. As explained below, however, we intend to review our TELRIC framework in a future proceeding. *See infra* Part VIII.B.2. To the extent the incumbent LECs' concerns relate not to the proper interpretation of the section 251(d)(2) standards governing access to UNEs, but rather to the section 252(d)(1) UNE pricing standards, those concerns should properly be addressed in that future proceeding rather than in this Order.

¹³⁷⁵ The dissents' claim that, when we voted February 20th, we intended to make only "presumptions" on impairment and that we have now significantly changed the item in making an affirmative finding. *Chairman Powell Statement* at n.42; *Commissioner Abernathy Statement* at 4. This argument completely misses the mark. In both the language we adopted February 20th and in this item, we had exactly the same intent: to make a national finding based on the record evidence but to allow the states to rebut that finding based on a more granular inquiry. In this manner, we intended to treat switching exactly as Chairman Powell proposed and the Commission unanimously voted to treat transport and loops. We previously characterized this approach as a "presumption" because Chairman Powell's proposed draft of the item used the "presumption" terminology in the transport and loops sections to convey that a finding of impairment (or non-impairment) is subject to a more a granular review by the states. The presumption language in the loops and transport sections was subsequently changed, and, accordingly, we changed the switching language to be consistent. In no sense did we intend to change our approach. The claim that we "made no findings at all" is simply false. Although we used the "presumption" terminology in accord with Chairman Powell's proposed language for transport and loops, we were explicit that our switching determination was based on findings of fact – i.e., the impairments associated with cutting over large volumes of loops, the NRCs associated with cutting over those loops, and the churn rates. Despite any confusion, throughout this process we have consistently endeavored to create a document that reflects the majority's views. Today's item is fully consistent with the positions taken in the negotiations leading to the vote on February 20th, and the majority's views today.

Consequently, we establish a national finding that competitors are not impaired with respect to DS1 enterprise customers that are served using loops at the DS1 capacity and above.¹³⁷⁶ DS1 enterprise customers are characterized by relatively intense, often data-centric, demand for telecommunications services sufficient to justify service via high-capacity loops at the DS1 capacity and above. The evidence in the record demonstrates that it becomes viable to aggregate loops at a customer location and provide service at a DS1 capacity interface or higher.¹³⁷⁷ Specifically, if a customer has purchased services from the competitive carrier that require a DS1 or above loop, it is economically feasible to digitize the traffic and aggregate the customer's voice loops at the customer's premises and put them onto a high-capacity circuit.¹³⁷⁸ This obviates the need for hot cuts at the incumbent LEC's central office,¹³⁷⁹ which, as discussed above, is a significant source of impairment. Specifically, the conversion process for enterprise customers generally involves the initiation of service to the competitor's new digital loop while the incumbent's service remains in place.¹³⁸⁰ During migration of an enterprise customer from analog services to a new digital loop, the enterprise customers remain on the incumbent's analog facilities while the new digital loop is installed and service initiated.¹³⁸¹ Similarly, where enterprise customers are being converted from the digital facilities, the competing carrier installs and initiates service on a new digital loop in parallel with the customer's existing service.¹³⁸² In each case, the incumbent's service is disconnected only after the competitor's service over a new loop has been initiated.¹³⁸³ Thus, enterprise customers avoid potentially lengthy disruption of service due to physical hot cuts, occasionally experiencing an outage of only 10 to 30 seconds for

¹³⁷⁶ For purposes of determining whether impairment exists according to our standard, we define DS1 enterprise customers as those customers for which it is economically feasible for a competing carrier to provide voice service with its own switch using a DS1 or above loop. We determine that this includes all customers that are served by the competing carrier using a DS1 or above loop, and all customers meeting the DS0 cutoff described below in paragraph 497. As discussed below, however, we determine that the state commissions are best situated to identify *potential* enterprise customers, *i.e.*, those customers for whom it could be economically feasible to serve using a DS1 or above loop. *See infra* para. 497. Because of the expected difficulties and detailed information needed in conducting this inquiry, we allow the states nine months to make this identification, which would include determining the maximum number of lines that a carrier may obtain from a particular customer before that customer is classified as a enterprise customer. We expect such analysis to be conducted at the same time as the analysis of the mass market. State commissions have discretion to define the relevant markets for purposes of this inquiry, provided they follow the guidelines described here and below. *See infra* Part VI.D.6.a.(ii)(b)(i) (discussing the market definition to be used by states).

¹³⁷⁷ Z-Tel Comments at 52.

¹³⁷⁸ BiznessOnline.Com Feb. 14, 2003 *Ex Parte* Letter at 14.

¹³⁷⁹ *See* NewSouth Reply at 27-28; NewSouth Fury Reply Aff. at para. 6.

¹³⁸⁰ NewSouth Fury Reply Aff. at paras. 6, 14.

¹³⁸¹ *Id.* at para. 14.

¹³⁸² *Id.* at paras. 18-19.

¹³⁸³ *Id.* at para. 19.

incoming calls as their numbers are updated in the industry databases used to route calls.¹³⁸⁴ As a result, competitive carriers neither incur the costs of hot cuts nor experience the quality degradation associated with the cut over process to serve customers with loops with DS1 capacity and above.¹³⁸⁵ Accordingly, competitive LECs generally face the same opportunities and challenges as incumbents on connecting such facilities to their switches.

452. In addition, the revenue opportunities associated with serving DS1 enterprise customers generally are sufficient to justify the sunk and fixed costs associated with using and installing the switch.¹³⁸⁶ DS1 enterprise customers are typically medium or large business customers with high demand for a variety of sophisticated telecommunications services that use loops with DS1 capacity and above. DS1 enterprise customers purchase extensive local services, resulting in significant revenues to the service provider, allowing a greater opportunity for the competitive LEC to recover any non-recurring costs associated with the “set-up” of the loop and switch facilities necessary to provide services.¹³⁸⁷ DS1 enterprise customers are more receptive to entering into long-term contracts, which likewise gives competing carriers a greater ability to recover non-recurring costs. Moreover, because large business customers generate comparably greater revenues than residential customers, requesting carriers are more willing to tolerate any provisioning difficulties that may be present in the installation process.

453. The record demonstrates that competitive LECs are competing successfully in the provision of switched services, using a collocation network with associated backhaul transport, to medium and large enterprise customers without unbundled local circuit switching.¹³⁸⁸ The characteristics of the enterprise market support use of self-provisioned switching in combination with unbundled loops (or loop facilities) without the imposition of substantial barriers upon the competitive LEC. The record indicates that competitive LECs are serving at least 13 million business lines through self-deployed switches, approximately 89 percent of all UNE-L lines served by competitive switches.¹³⁸⁹ Accordingly, while the enterprise market characteristics do not eliminate all of the cost and operational disadvantages that competitive carriers may face when using their own switches to serve enterprise customers, we find that evidence in the record shows that, unlike for the mass market, the elimination of cut over cost differentials and other

¹³⁸⁴ *Id.* at paras. 15-17.

¹³⁸⁵ NewSouth Fury Reply Aff. at para. 6; Letter from Joan Marsh, Director, Federal Government Affairs, AT&T, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147 at 2 (filed Jan. 17, 2003) (AT&T Jan. 17, 2003 *Ex Parte* Letter); BiznessOnline.Com Feb. 14, 2003 *Ex Parte* Letter at 14.

¹³⁸⁶ NewSouth Reply at 29-30; NewSouth Fury Reply Aff. at paras. 5-6.

¹³⁸⁷ NewSouth Reply at 30; NewSouth Fury Reply Aff. at para. 6.

¹³⁸⁸ Allegiance, for example, serves several enterprise customers using its own switches. Verizon Reply at 103 (citing Allegiance SEC Form 10-K for the period ending December 31, 2001). In addition, Conversent Communications also “provides local and long distance voice and data service to small and medium sized business customers in second and third tier urban and suburban markets” using its own switch. Conversent Comments at 1-2.

¹³⁸⁹ BOC UNE Fact Report 2002 at II-1; Verizon Unbundled Switching Study at 3.

operational issues supports a national finding of no impairment.¹³⁹⁰ That is, the record indicates that denial of access to unbundled switching would not impair a competitor's ability to serve the enterprise markets, including all customers which are served by the competitor over loops of DS1 capacity and above.¹³⁹¹

454. Although the record shows no impairment on a national basis, we recognize that a geographically specific analysis could possibly demonstrate that competitive carriers are impaired without access to unbundled incumbent LEC local circuit switching for DS1 enterprise customers in a particular market.¹³⁹² As discussed above, while the record shows that cut over cost differentials are eliminated and other operational challenges may be mitigated when competitive carriers use their own switches to serve enterprise customers, the characteristics of enterprise markets do not eliminate all of the cost and operational disadvantages. For example, in a local market with low retail rates, it is possible that difficulties in obtaining collocation space, costs accompanying collocation, high UNE rates for local loops, and backhaul costs could make it uneconomic for competitive LECs to self-deploy switches specifically to serve the enterprise market. In particular, the record suggests that such factors make impairment more likely in rural areas.¹³⁹³

455. While the record in this proceeding does not contain evidence identifying any particular markets where competitive carriers would be impaired without unbundled access to local circuit switching to serve enterprise customers, state commissions are uniquely positioned to evaluate local market conditions and determine whether DS1 enterprise customers should be granted access to unbundled incumbent LEC circuit switching.¹³⁹⁴ To that end, we permit state commissions to rebut the national finding of no impairment by undertaking a more granular analysis utilizing the economic and operational criteria contained herein. State commissions will have 90 days from the effective date of this Order to petition the Commission to waive the finding of no impairment.¹³⁹⁵ State commissions wishing to do so must make an affirmative

¹³⁹⁰ See, e.g., Letter from Christopher J. Wright, Counsel for Z-Tel, to Marlene H. Dortch, Secretary, FCC, CC Docket Nos. 01-338, 96-98, 98-147 at 2-3 (filed Oct. 10, 2002) (Z-Tel Oct. 10, 2002 *Ex Parte* Letter) (stating that large businesses with intensive bandwidth needs are a different market than the mass market – they will agree to enter into long-term contracts and can tolerate some degree of manual installation).

¹³⁹¹ See Verizon Reply at 103 (citing Allegiance Telecom, Inc. SEC Form 10-K for year ending December 31, 2001, at 30, 34).

¹³⁹² We also note that these costs may only be considered a barrier to entry if they are sufficient to prevent economic entry, and thus they would not be considered “the kinds of costs any new entrant would bear.”

¹³⁹³ See, e.g., UNE-P Coalition Comments at 51; PACE Dec. 12, 2002 *Ex Parte* Letter.

¹³⁹⁴ Moreover, where we have found no impairment, states may alter that determination only by petitioning this Commission. It is solely where we have found impairment that states may alter the finding without petitioning us first. This further undercuts the dissents' claims that the role we provide for the states is biased in favor of finding impairment.

¹³⁹⁵ Chairman Powell complains that the majority “fails to reach a conclusive finding of no-impairment in competitive business markets.” *Chairman Powell Statement* at 14. In fact, we have made a nationwide finding that switching for enterprise customers should not be unbundled, which states can displace only by filing a petition for (continued....)

finding of impairment showing that carriers providing service at the DS1 capacity and above should be entitled to unbundled access to local circuit switching in a particular market.¹³⁹⁶ State commissions have discretion to define the relevant markets for purposes of this inquiry, provided they follow the guidelines described here and below.¹³⁹⁷ After the 90-day period, states may wish, pursuant to state-determined procedures, to revisit whether competitive LECs are impaired

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waiver with this Commission based on explicitly enumerated factors. Chairman Powell's assertion that we should not allow waivers of our determination is difficult to fathom. The Commission's governing rules state that "Any provision of the rules may be waived by the Commission on its own motion or on petition if good cause therefore is shown." 47 C.F.R. § 1.3. Moreover, in sections of the Order proposed by Chairman Powell and adopted unanimously, we explicitly note that our unbundling determinations for transport and high-cap loops can be displaced by states through filing of a waiver with this Commission.

¹³⁹⁶ In voting on February 20th, we noted that the manner in which state commissions could rebut our national finding of impairment for enterprise switches was subject to further analysis regarding the viability of that approach. After completing this further analysis and reviewing concerns raised by the dissents that had not been previously discussed, we decided that allowing state commissions to rebut the national findings through a waiver petition to this Commission was the best way to effectuate its overall intent in the item and provide effective oversight. As the Commission has concluded in other contexts, "[s]ome of those concerns were well thought-out and prompted the majority to rethink its position and further explain its rationale. Those steps improved this Order – and in turn resulted in a higher quality product for the American people. At the end of the day that should be the goal of all the Commissioners." *Joint Statement of Chairman Powell and Commissioner Abernathy on Northpoint*, 17 FCC Rcd at 9807. The waiver process we adopted improved this Order and also responds to some of the dissenters' concerns about oversight. While ideally we would engage in the dialogue at an earlier stage, "continuous improvement of our items is the right thing to do." *See Joint Statement of Chairman Powell and Commissioner Abernathy on Northpoint*, 17 FCC Rcd at 9807. The Commission routinely clarifies its intent and strengthens its orders through "post-adoption edits" before an item's release. *See Joint Statement of Chairman Powell and Commissioner Abernathy on Northpoint*, 17 FCC Rcd at 9807 n.705 ("There is nothing procedurally inappropriate in making changes, substantive or non-substantive, after adoption to further elucidate the rationale for the Commission's decision. Such revisions are permissible when all non-dissenting Commissioners concur in the changes. Here, all of the Commissioners who supported the relevant sections agreed to the post-adoption edits."); Statement of Chairman William E. Kennard, *1998 Biennial Regulatory Review – Review of the Commission's Broadcast Ownership Rules and Other Rules Adopted Pursuant to Section 202 of the Telecommunications Act of 1996*, MM Docket No. 98-35, Biennial Review Report, 15 FCC Rcd 11058, 11126 n.6 (2000) ("Contrary to the suggestion of dissenting Commissioners, there is nothing procedurally inappropriate in making revisions, substantive or non-substantive, to the biennial review report after adoption in order to further elucidate the rationale for the decision to retain the national ownership rule. Such revisions are permissible when all non-dissenting Commissioners concur in the revisions. Here, all the Commissioners who supported the relevant sections agreed to the post-adoption edits. Post-adoption edits are not uncommon."); Separate Statement of Commissioner Kevin J. Martin, *2002 Biennial Regulatory Review – Review of the Commission's Broadcast Ownership Rules and Other Rules Adopted Pursuant to Section 202 of the Telecommunications Act of 1996*, Report and Order and Notice of Proposed Rulemaking, MB Docket Nos. 02-277, 03-130, MM Docket Nos. 01-235, 01-317, 00-244, at 2-3 n.1 (rel. July 2, 2003) (enumerating some of the substantive post-adoption edits to that item). Indeed, elsewhere in this item, after initially requiring that incumbent LECs seek state approval before retiring copper loops, the Chairman proposed, and the majority agreed, to remove this approval requirement. Here in this item, all of the Commissioners who support the relevant section agree to the post-adoption edits, as each has signed the Commission form designated for precisely that purpose.

¹³⁹⁷ *See infra* Part VI.D.6.a.(ii)(b)(i) (discussing the market definition to be used by the states).

without access to unbundled local circuit switching to serve enterprise customers due to changes in the specified operational and economic criteria.¹³⁹⁸

456. *Operational Criteria.* In order to rebut the Commission's finding of no impairment as it relates to operational barriers, the states must examine whether operational factors are impairing competitors, according to our impairment standard discussed above.¹³⁹⁹ In particular, state commissions must consider whether incumbent LEC performance in provisioning loops, difficulties in obtaining collocation space due to lack of space or delays in provisioning by the incumbent LEC, or difficulties in obtaining cross-connects¹⁴⁰⁰ in an incumbent's wire center, are making entry uneconomic for competitive LECs. We believe, based on the large record in this proceeding, that these factors can raise barriers to entry.¹⁴⁰¹ We lack, however, sufficient specific evidence concerning whether and where they will be significant enough to constitute impairment. We therefore ask state commissions to consider evidence, which could include performance metrics and standards for BOCs or other types of evidence for non-BOC incumbent LECs, of whether these factors are impairing entrants in the enterprise market, and whether unbundling will overcome this impairment.

457. *Economic Criteria.* To rebut the Commission's finding that competitive LECs are not impaired by the lack of access to unbundled local circuit switching, the states must find that entry into a particular market is uneconomic in the absence of unbundled local circuit switching. To make this determination, states must weigh competitive LECs' potential revenues from serving enterprise customers in a particular geographic market against the cost of entry into that market. In evaluating competitive LECs' potential revenues, the states should consider all likely revenues to be gained from entering the enterprise market (not necessarily any carrier's individual business plan), including revenues derived from local exchange and data services. The states should also consider the prices entrants are likely to be able to charge, after considering the prevailing retail rates the incumbents charge to the different classes of customers in the different parts of the state. In determining the cost of entry into a particular geographic market, the states should consider the costs imposed by both operational and economic barriers to entry.

458. The states must consider all relevant factors in determining whether entry is uneconomic in the absence of unbundled access to local circuit switching. For example, even in a market where retail rates would give competitive carriers the opportunity to earn considerable

¹³⁹⁸ Any subsequent review to rebut the Commission's finding remains subject to the petition process discussed in this paragraph above. The proceedings described in this paragraph shall be completed within six months of the filing of a petition or other pleading submitted in accordance with the prescribed state procedures.

¹³⁹⁹ See *supra* Part V.B.1 (discussing our impairment standard).

¹⁴⁰⁰ A cross-connect is defined as "[a] connection scheme between cabling runs, subsystems, and equipment using patch cords or jumpers that attach to connecting hardware on each end." NEWTON'S TELECOM DICTIONARY at 191 (18th ed. 2002).

¹⁴⁰¹ See *infra* Part VI.D.5.

revenues, entry may nonetheless be uneconomic. For example, the potential revenues could be outweighed by a combination of even higher economic and operational costs, such as untimely and unreliable provisioning of loops, transport, or collocation by the incumbent LEC at high non-recurring charges, and significant costs to purchase equipment and backhaul the local traffic to the competitor's switch. However, where competitive LECs have the opportunity to earn revenues that outweigh the costs associated with entry, carriers are not impaired without unbundled access to local circuit switching for DS1 enterprise customers.

6. Mass Market Customers

459. The record demonstrates that customers for mass market services are different from customers in the enterprise market.¹⁴⁰² The mass market for local services consists primarily of consumers of analog "plain old telephone service" or "POTS" that purchase only a limited number of POTS lines and can only economically be served via analog DS0 loops.¹⁴⁰³ We find on a national basis, that competing carriers are impaired without access to unbundled local circuit switching for mass market customers.¹⁴⁰⁴ This finding is based on evidence in our record regarding the economic and operational barriers caused by the cut over process.¹⁴⁰⁵ These

¹⁴⁰² Mass market customers are residential and very small business customers – customers that do not, unlike larger businesses, require high-bandwidth connectivity at DS1 capacity and above. Z-Tel Comments at 30-31. Mass market customers' accounts tend to be smaller, lower revenue accounts and are often serviced on a month-to-month basis and not pursuant to annual contracts. The record shows that consumers of DS1 capacity and above telecommunications are more willing to sign annual or term commitments. *Id.* at 32.

¹⁴⁰³ Z-Tel Comments at 30.

¹⁴⁰⁴ As mentioned, the dissenters are simply wrong in claiming that, when we voted on February 20th, we intended to make only "presumptions" on impairment and that we have now significantly changed the item. *See supra* note 1375. In both the language we adopted February 20th and in this item, we had exactly the same intent: to make a national finding based on a more granular inquiry. In this manner, we intended to treat switching the exactly as Chairman Powell proposed and the Commission unanimously voted to treat transport and loops. We previously characterized this approach as a "presumption" because Chairman Powell's proposed draft of the item used the "presumption" terminology in the transport and loops sections to convey that a finding impairment (or nonimpairment) is subject to a more granular review by the states. The presumption language in the loops and transport sections was subsequently changed, and, accordingly, we changed the switching language to be consistent. As we explained, *see supra* note 1375, in no sense did we intend to change our approach.

¹⁴⁰⁵ Chairman Powell claims that "[t]he Majority finds impairment based solely on the basis of operational impairment" but, he asserts, "it empowers the states to find economic impairment (even after curing the operational concern) based on a laundry list of possible economic disadvantages." *Chairman Powell Statement* at 7. The Chairman misrepresents our analysis. To begin with, we base our impairment finding on "economic and operational barriers." *See supra* paras. 459-475. Among other things, for example, we find that high non-recurring per-line charges for connecting a carrier's own switch to an unbundled loop in combination with customer churn may make entry uneconomic. *Id.* Moreover, Chairman Powell's suggestion that we allow states to find impairment on the basis of factors that we did not consider is simply wrong, as we did consider and address all of these factors. We found that "the record evidence indicates that these factors may give rise to impairment in a given market, even setting aside the problems associated with hot cuts." *See supra* para. 476. We did not base our national impairment finding on these factors because "[t]he evidence in the record is not sufficiently detailed to conclude that impairment exists on a national basis due to these factors, as they vary on a geographic basis." *See supra* para. 476 note 1472. It is for that reason that we have asked the states to investigate them. Finally, Chairman Powell's intimation that we have (continued....)

barriers include the associated non-recurring costs, the potential for disruption of service to the customer, and our conclusion, as demonstrated by our record, that incumbent LECs appear unable to handle the necessary volume of migrations to support competitive switching in the absence of unbundled switching. These hot cut barriers not only make it uneconomic for competitive LECs to self-deploy switches specifically to serve the mass market, but also hinder competitive carriers' ability to serve mass market customers using switches self-deployed to serve enterprise customers.

460. In this section, we ask state commissions to take specific actions designed to alleviate impairment in markets over which they exercise jurisdiction. Because we find that operational and economic factors associated with the current hot cut process used to transfer a loop from one carrier's switch to another's serve as barriers to competitive entry in the absence of unbundled switching, state commissions must, within nine months from the effective date of this Order, approve and implement a batch cut process that will render the hot cut process more efficient and reduce per-line hot cut costs. In the alternative, if appropriate for any particular geographic market, state commissions must issue detailed findings supporting a conclusion that current hot cut processes do not give rise to impairment in a market and that a batch cut process is therefore unnecessary.

461. We also recognize that a more granular analysis may reveal that a particular market is not subject to impairment in the absence of unbundled local circuit switching. We therefore set forth two triggers that state commissions must apply in determining whether requesting carriers are impaired in a given market. Our triggers are based on our conclusion that actual deployment is the best indicator of whether there is impairment, and accordingly evidence of actual deployment is given substantial weight in our impairment analysis. Thus, we determine that states should examine these triggers first in their analyses.

462. *Framework of Analysis.* The analysis we prescribe with regard to mass market switching is as follows. First, where a state determines that there are three or more carriers, unaffiliated with either the incumbent LEC or each other, that are serving mass market customers in a particular market using self-provisioned switches, the state must find "no impairment" in that market. As described below, we recognize that there may be some markets where three or more carriers are serving mass market customers with self-provisioned switches, but where some significant barrier to entry exists such that additional carriers with self-provisioned switches are foreclosed from serving mass market customers. For example, if there is no collocation space

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tilted the scales in favor of finding impairment by listing what he considers to be a "laundry list" of factors fundamentally misunderstands the impairment inquiry. *Chairman Powell Statement* at 7. Chairman Powell and the rest of the Commission have all agreed that actual deployment is the best evidence of impairment. The factors that Chairman Powell criticizes here come into play only if our deployment triggers are not met. As such, the factors' purpose is to determine whether the lack of deployment is due to actual impairment or some other reason by inquiring whether entry is in fact uneconomic. In making this determination, Chairman Powell has acknowledged that one must consider all "costs of entry" as well as all potential revenues. *See supra* para. 84. Just as in our analysis of high-capacity loops and transport, which Chairman Powell proposed and the Commission adopted unanimously, this inquiry requires consideration of a number of different factors.